REMARKS

An Excess Claim Fee Payment Letter is submitted herewith to cover the cost of four excess total claims.

Claims 1-11 and 26-42 are all the claims presently pending in the application. Claims 1, 7 and 37 have been amended to more particularly define the claimed invention. Claims 39-42 have been added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 2, 4, 33, 35 and 38 stand rejected under 35 U. S. C. §102(b) as allegedly unpatentable over Juestel et al. (JP Pub. 2002-223008). Claim 37 stands rejected under 35 U. S. C. §102(b) as allegedly unpatentable over Lowery (U. S. Patent No. 5,959,316). Claims 3, 5, 6, 7 and 9-11 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Roberts et al. (U. S. Patent No. 6,335,548).

Claim 8 stands rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel and Roberts and further in view of Mueller et al. (U. S. Patent No. 6,417,019). Claims 26 and 36 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Lowery. Claims 27-32 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Chen (U. S. Patent No. 6,531,328). Claim 34 stands rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Keller (U. S. Patent Pub. No. 1004/0012027).

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (e.g., as recited, for example, in claim 1) is directed to a light emitting apparatus which includes a semiconductor light emitting element that

emits light with a predetermined wavelength, a pre-molded light-transmitting portion that includes a recess to house the semiconductor light emitting element, the pre-molded light-transmitting portion comprising a light-transmitting material (Application at page 13, lines 17-20), and a phosphor layer portion that is formed on a surface of the recess, the phosphor layer portion including a phosphor to be excited by irradiating light emitted from the semiconductor light emitting element.

A conventional apparatus (e.g., see Application at Figure 4A) may include a light emitting diode (LED) 60 integrally formed with light source 62, and a lens element 72. However, since in such an apparatus the light source 62 and lens element 72 are positioned using posts 70, 71 and recesses 62A, 62B (Application at Figure 4B), it is difficult to adjust the positioning precision of the light source 62 and lens element 72. (Application at page 5, lines 1-5).

The claimed invention, on the other hand, includes a pre-molded light-transmitting portion that includes a recess to house the semiconductor light emitting element, the pre-molded light-transmitting portion comprising a light-transmitting material (Application at page 13, lines 17-20). This may help to precisely position the light emitting element with respect to the phosphor layer portion that is formed one the surface of the recess (Application at page 15, lines 4-11).

II. THE ALLEGED PRIOR ART REFERENCES

A. Juestel

The Examiner alleges that Juestel teaches the invention of claims 1, 2, 4, 33, 35 and 38. Applicant would submit, however, that there are features of the claimed invention that are not taught or suggested by Juestel.

Juestel discloses a light emitting element which is intended to have an improved lifetime. The light emitting element includes a light emitting diode (LED) 3 and a fluorescence layer 2 having a water-resistant coating (Juestel at Abstract).

However, Applicant would submit that Juestel does not teach or suggest "*a pre-molded light-transmitting portion that includes a recess to house the semiconductor light emitting element, the pre-molded light-transmitting portion comprising a light-*

transmitting material", as recited in claim 1. As noted above, in an exemplary aspect of the claimed invention, this feature may help to precisely position the light emitting element with respect to the phosphor layer portion that is thinly formed along the surface of the recess (Application at page 15, lines 4-11).

Clearly, Juestel does not teach or suggest this novel feature. Indeed, Applicant would point out that a light emitting apparatus or a method of the claimed invention includes a pre-molded light-transmitting portion (as recited by claims 1 and 7) or a pre-molded lens (as recited by claim 37) that includes a recess or recessed portion to house a light emitting element.

Conventional techniques do not use a pre-molded light-transmitting portion, and thus, a phosphor layer is difficult to form uniformly (See page 3, lines 12-15). However, in the claimed invention, owing to having the pre-molded light-transmitting portion, the phosphor layer may be formed (e.g., directly formed) on the surface of the recess (or recessed portion) in separate process and uniformly.

As such, the claimed invention can have advantages as described in this application (e.g., see Application at page 14, line 17 to page 15, line 17).

Clearly, Juestel does not teach or suggest these novel features. Indeed, Juestel clearly does not teach or suggest a "pre-molded light-transmitting portion (or pre-molded lens)" with a recess to house a light emitting element.

Therefore, even assuming (arguendo) that Juestel includes a phosphor layer that is, at the beginning of the formation process thereof, formed uniform on the light emitting element (not on the surface of the recess of the light-transmitting portion), the phosphor layer material is fluid and will flow downward by gravity even during the formation process. This causes unevenness in the thickness of the phosphor layer.

Thus, in Juestel, since the thickness of the phosphor layer varies, the shape or size of the recess formed in the light-transmitting portion will vary. That is, the shape or size of the recess in Juestel must be defined by the thickness of the phosphor layer.

In contrast to this, the claimed invention may allow easy control of the thickness of the phosphor layer because of using the pre-molded light-transmitting portion. For example, in the claimed invention, an insert molding can be applied to the formation of

the uniform phosphor layer on the surface of the recess.

Thus, Juestel is completely unrelated to the claimed invention. In fact, Juestel simply teaches forming the housing 6 using a conventional method of depositing a liquid epoxy on the LED 3 and curing the liquid epoxy to form the housing 6. However, this provides a completely different result from the claimed invention in which the semiconductor light emitting element is inserted into the recess to house the semiconductor light emitting element.

Therefore, Applicant would submit that there are features of the claimed invention that are not taught or suggested by Juestel. Therefore, the Examiner is respectfully requested to withdraw this rejection.

B. Lowery

The Examiner alleges that Lowery teaches the invention of claim 37, and that Lowery would have been combined with Juestel to form the invention of claims 26 and 36. Applicant would submit, however, that these references would not have been combined and even if combined, the alleged combination would not teach or suggest each and every element of the claimed invention.

Lowery discloses a device including an LED 18, a transparent spacer 50 deposited on the LED 18 and cured (Lowery at col. 3, lines 7-9), a fluorescent material 52 deposited on the spacer 50 and cured, and the "entire assembly is embedded in a transparent encapsulation epoxy resin 26 (Lowery at Figure 1).

However, Applicant respectfully submits that Juestel and Lowery are unrelated. Indeed, Juestel is intended to waterproof a fluorescence layer in a light emitting element, whereas Lowery is intended to provide more uniform lighting by using a transparent spacer. No person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

In fact, Applicant submits that the references provide no motivation or suggestion to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so

motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, Applicant would submit that neither Justel, nor Lowery, nor any alleged combination thereof teaches or suggests "*a pre-molded light-transmitting portion that includes a recess to house the semiconductor light emitting element, the pre-molded light-transmitting portion comprising a light-transmitting material*", as recited in claim 1. As noted above, in an exemplary aspect of the claimed invention, this feature may help to precisely position the light emitting element with respect to the phosphor layer portion that is thinly formed along the surface of the recess (Application at page 15, lines 4-11).

Clearly, this feature is not taught or suggested by Lowery. Indeed, Lowery discloses a device that is similar to the device discussed in the Background section of the present Application (Application at page 3, lines 5-17). As noted in the Application, in the Lowery device, it is difficult to control the shape and thickness of the phosphor layer with a high precision.

That is, even assuming (arguendo) that Lowery includes a phosphor layer that is, at the beginning of the formation process thereof, formed uniform on the light emitting element (not on the surface of the recess of the light-transmitting portion), the phosphor layer material is fluid and will flow downward by gravity even during the formation process. This causes unevenness in the thickness of the phosphor layer.

Thus, in Lowery, as in Juestel, since the thickness of the phosphor layer varies, the shape or size of the recess formed in the light-transmitting portion will vary. That is, the shape or size of the recess in Lowery must be defined by the thickness of the phosphor layer.

Again, in contrast to this, the claimed invention may allow easy control of the thickness of the phosphor layer because of using the **pre-molded** light-transmitting portion. For example, in the claimed invention, an insert molding can be applied to the formation of the uniform phosphor layer on the surface of the recess.

Therefore, Applicant would submit that these references would not have been combined and even if combined, the combination would not teach or suggest each and

every feature of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

C. **Roberts, Mueller, Chen and Keller**

The Examiner alleges that Juestel would have been combined with Roberts to form the claimed invention of claims 3, 5, 6, 7 and 9-11, that Juestel would have been combined with Roberts and Mueller to form the invention of claim 8, that Juestel would have been combined with Chen to form the invention of claims 27-32, and that Juestel would have been combined with Keller to form the invention of claim 34. Applicant would submit, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention.

Roberts is directed to a semiconductor radiator emitter package, in which a radiation emitter 202 (e.g., LED chip) is mounted on lead frame 201 (Roberts at col. 26, lines 18-29).

Mueller discloses a method of fabricating a light emitting device which includes a phosphor layer 37 deposited on a light emitting diode 8 (Mueller at Abstract).

Chen discloses a packaging substrate including a packaging material 8, an LED chip 3 and an encapsulating resin 5 (Chen at Figure 14; col. 5, lines 1-45).

Keller discloses a solid state emitter package and a phosphor including cerium-doped yttrium aluminum garnet (Ce:YAG) (Keller at [0008]).

However, Applicant respectfully submits that these references are unrelated. Indeed, in contrast to Juestel, Roberts is directed to a radiation emitter package, Mueller is intended to provide a light emitting device having an improved phosphor layer, Chen is intended to improve performance by using a silicon wafer as a packaging substrate, and Keller is intended to improve an emitter package by using a conversion material which absorbs substantially all of the light emitted from an emitter. No person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

In fact, Applicant submits that the references provide no motivation or

suggestion to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, Applicant would submit that neither Juestel, nor Roberts, nor Mueller, nor Chen, nor Keller, nor any alleged combination thereof teaches or suggests "*a pre-molded light-transmitting portion that includes a recess to house the semiconductor light emitting element, the pre-molded light-transmitting portion comprising a light-transmitting material*", as recited in claim 1. As noted above, in an exemplary aspect of the claimed invention, this feature may help to precisely position the light emitting element with respect to the phosphor layer portion that is thinly formed along the surface of the recess (Application at page 15, lines 4-11).

Clearly, Roberts does not teach or suggest this novel feature. Indeed, the Examiner attempts to rely on Figure 19 and columns 20 and 29-30 to support his position. However, this is clearly unreasonable.

In fact, like Juestel and Lowery, Roberts does not teach or suggest a light-transmitting portion (e.g., a lens) that is **pre-molded**. Indeed, in Roberts, the phosphor layer is deposited as a liquid and has a varied thickness. Thus, the shape or size of the recess formed in the light-transmitting portion will vary. That is, the shape or size of the recess in Roberts must be defined by the thickness of the phosphor layer. Therefore, Roberts clearly does not make up for the deficiencies of Juestel.

Likewise, Mueller does not teach or suggest a light-transmitting portion (e.g., a lens) that is **pre-molded**. Indeed, the Examiner attempts to rely on col. 7, lines 19-20 to support his position. However, this is clearly unreasonable.

In fact, col. 7, lines 19-20 in Mueller merely discusses methods of depositing a phosphor layer. Specifically, Mueller teaches depositing a phosphor layer 37 directly on the LED 8.

That is, as in Juestel, Lowery and Roberts, in Mueller, the phosphor layer is deposited as a liquid and has a varied thickness. Thus, the shape or size of the recess

formed in the light-transmitting portion will vary. That is, the shape or size of the recess in Roberts must be defined by the thickness of the phosphor layer. Therefore, Mueller clearly does not make up for the deficiencies of Juestel and Roberts.

Likewise, this feature is clearly not taught or suggested by Chen. Indeed, the Examiner attempts to equate the LED chip 3 in Chen with the light emitting element of the claimed invention. Again, this is clearly unreasonable.

In fact, nowhere does Chen teach or suggest does not teach or suggest a light-transmitting portion (e.g., a lens) that is **pre-molded**. Therefore, Chen clearly does not make up for the deficiencies of Juestel.

Likewise, Keller does not teach or suggest a light-transmitting portion (e.g., a lens) that is **pre-molded.** Indeed, Keller simply discloses that a protective epoxy layer is filled into the cup 18 of the package 10 such that the LED 12 is covered, and then the epoxy is cured (Keller at [0033]). Therefore, Keller clearly does not make up for the deficiencies of Juestel.

Again, in contrast to these alleged references, the claimed invention may allow easy control of the thickness of the phosphor layer because of using the **pre-molded** light-transmitting portion. For example, in the claimed invention, an insert molding can be applied to the formation of the uniform phosphor layer on the surface of the recess.

Therefore, Applicant would submit that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. NEW CLAIMS

Applicant note that newly added claims 39 and 40 recite "said pre-molded light-transmitting portion further comprises a positioning portion to allow said pre-molded light-transmitting portion to be precisely positioned to said semiconductor light emitting element" (e.g., see Application at page 12, lines 19-25, and page 15, lines 4-7)

Newly added claims 41 and 42 recite "said recess (or recessed portion)

comprises a predetermined size not defined by a thickness of said phosphor layer portion (or phosphor layer)" (e.g., see Application at page 3, lines 12-15, page 14, lines 17-21 and page 15, lines 12-14).

Applicant notes that since the lens of the claimed invention is pre-molded (e.g., see Application at page 13, lines 17-20), it is clear that the predetermined size of the lens is not defined by the thickness of the phosphor layer formed thereon after the pre-molding.

In addition, owing to a "positioning portion" (e.g., a convex portion of the lens (e.g., see Application at page 12, lines 22-24) as recited by newly added claims 39 and 40, the lens (e.g., pre-molded light-transmitting portion) can be precisely positioned to the semiconductor light emitting element.

Further, in an exemplary aspect, the recess in the pre-molded light-transmitting portion (or lens) may include a predetermined size which is other than defined by a thickness of the phosphor layer portion formed thereon (e.g., as recited by new claims 41 and 42).

IV. FORMAL MATTERS AND CONCLUSION

Applicant notes that the title has been amended to address the Examiner's concerns.

In view of the foregoing, Applicant submits that claims 1-11 and 26-42, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 4/17/07

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment was filed by facsimile with the United States Patent and Trademark Office, Examiner Andrew Owens Arena Group Art Unit # 2811 at fax number (571) 273-8300 this 17 day of April, 2007.

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